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LISTS OF SPECIES

Parque Nacional da Serra do Itajaí (southern Brazil) shrub and herbs flora

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ABSTRACT: This paper aim to characterize the herbaceous and shrub species diversity of Parque Nacional da Serra do Itajaí (PNSI). We identified 643 herbaceous and shrub species distributed in 110 families being the most representative family Asteraceae (62 species), Melastomataceae (49) and Rubiaceae (30), besides a two new records for Santa Catarina (*Thelypteris glaziovii* T.F. Reed and *Pseudelephantopus spiralis* Cronquist). We recorded 22 exotic species. Thus, due to the vast diversity of life and the rather large territory, PNSI is one of the most important spots for biodiversity conservation in Santa Catarina.

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INTRODUCTION

Santa Catarina's flora is very well documented due to the memorable efforts of botanists such as Roberto Miguel Klein and Raulino Reitz, founders of Herbário Barbosa Rodrigues and Flora Ilustrada Catarinense authors. It is estimated that today 80% of the species are already published in the *Flora Ilustrada Catarinense* (Reitz 1965–1989 and Reis 1999–2011), meaning 3,784 species in 929 genera and 159 families, published in 189 fascicles and 15,008 pages (Reis 2011).

According to Flora do Brasil (2013), in Santa Catarina there are mentioned 4,434 angiosperm species (4,208 native), 420 ferns species *latu sensu* (415 native) and six gymnosperms (three native), totaling 4,860 taxa, which represents about 15% of all known plant species in Brazil and about 31% of the known species in the Atlantic rainforest (Stehmann *et al.* 2009).

Despite of being recorded, many of these species have very few samples, often quite long time ago, particularly not arboreal species, which are often excluded from forest surveys. According to Feelei and Silman (2011), the more a species are collected, the better it can be evaluated for its conservation status, as well as decide appropriate strategies for their preservation.

As pointed out by Gilliam and Roberts (2003), herbaceous synusiae is neglected because it does not represent the structure of the forest and also because it does not have commercial value, unlike the trees, which may have economic value assigned to the timber. However, native species often have useful properties, but lack studies prospects for them. The economic importance of herbs and shrubs is, for example, the major source of secondary compounds, widely studied searching for new drugs, besides providing food, fibers, industrial inputs, ornamental, essences, spices, among many other uses to humans (Mentz *et al*. 1997; Coradin *et al*. 2011).

The Itajaí Valley is located in Santa Catarina, and is covered by Atlantic Subtropical Rainforest and has humid mesothermal climate with hot summers (Cfa) (Köppen 1948). The Itajaí-Açu watershed covers approximately 15,000 km^2, and, as Leite and Klein (1990) pointed out, the vegetation of this area is known to be very rich in tree species, lianas and epiphytes, especially for tree species such as canela-preta (*Ocotea catharinensis* Mez), laranjeira-do-mato (*Sloanea guianensis* (Aubl.) Benth.), peroba (*Aspidosperma australe* Müll. Arg.) and tanheiro (*Alchornea triplinervia* (Spreng.) Müll. Arg.). Tree ferns dominates the understory like *Alsophila setosa* Kaulf., *Cyathea phalerata* Mart. and *Cyathea corcovadensis* (Raddi) Domin, besides the presence of shrubs of the genus *Psychotria* L. and *Mollinedia* Ruiz & Pavon (Sevegnani *et al*. 2013).

Thus, the objective of this study was to characterize the floristic diversity of herbaceous and shrub species of the largest remnants of Atlantic Subtropical Rainforest in southern Brazil, the Parque Nacional da Serra do Itajaí.

MATERIALS AND METHODS

Study Area

The Parque Nacional da Serra do Itajaí (PNSI) was created in June 2004 with more than 57,000 ha. It is covered by Rainforest (Oliveira-Filho 2009), distributed in sub-montane, montane and upper montane secondary and primary vegetation. The region is predominantly mountainous with altitudes ranging from about 30 to 1000 m. Part of it, which belonged to the former Parque Natural Municipal Nascentes do Garcia, is located in Blumenau city, in the Middle Itajaí Valley, between the coordinates 27°06′ S and 49°10′ W, in Santa Catarina (Figure 1), southern Brazil.

For logistics reasons, four locations were defined for field studies. The locations are: Parque Ecológico Spitzkopf, RPPN Buguerkopf, Morro do Sapo and Trilha da Chuva, all of them part of Parque Nacional da Serra do Itajaí. The PNSI is part of a major fragment of Atlantic Subtropical Rainforest, which has previously suffered from several human disturbances, but is now in an advanced stage of

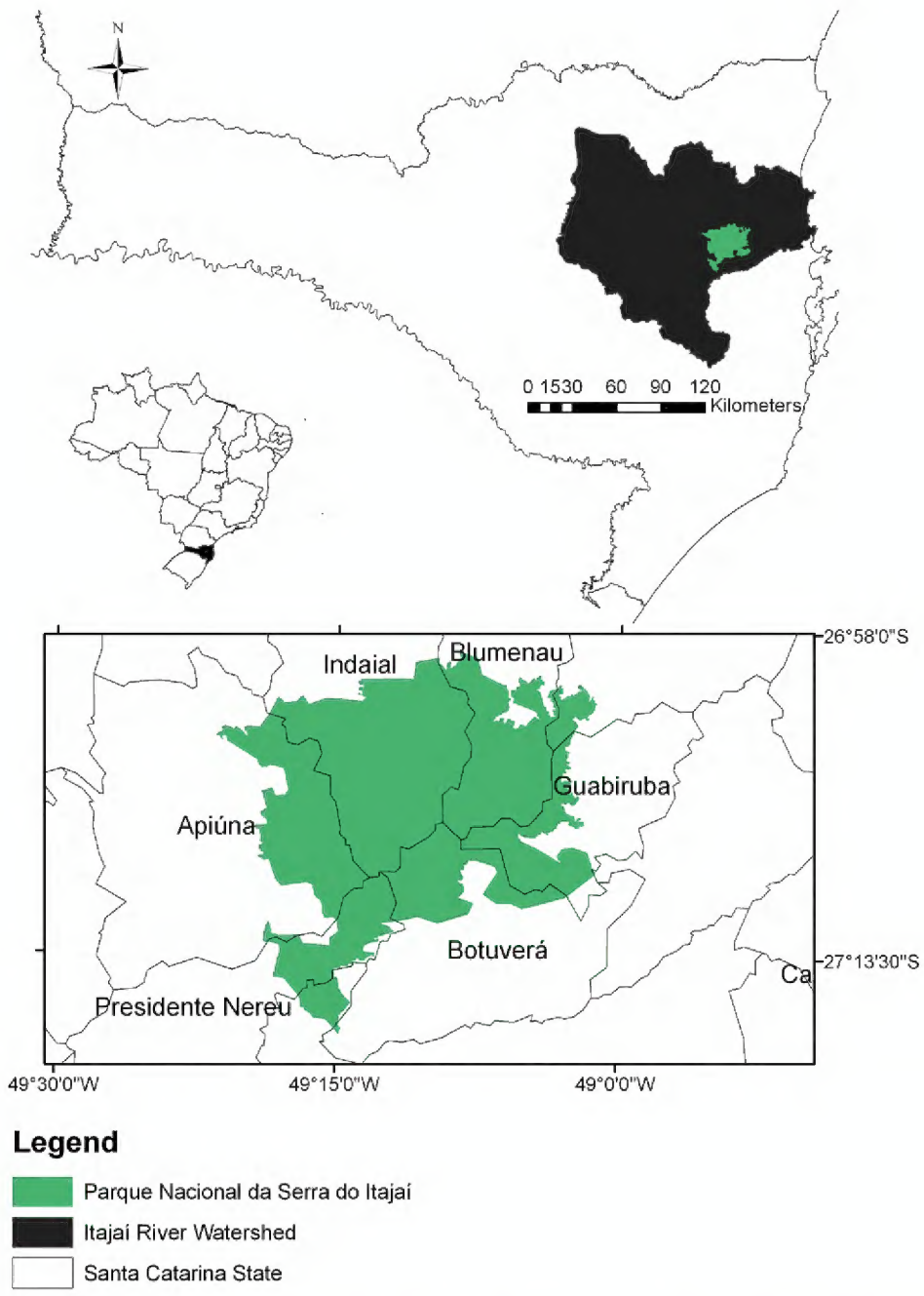

FIGURE 1. Location of the Parque Nacional da Serra do Itajaí, Itajaí Valley, Santa Catarina, Brazil.

regeneration. The climate is tropical humid with no dry season and thermal averages never below 15°C. Rainfall are abundant and evenly distributed throughout the year, however, there is a period of more intense rain during the summer, with less than 60 days with less than 100 mm rainfall. The relative humidity is high, ranging from 84–86% (Santa Catarina 1986).

Data collection

We collected fertile specimens by active search (Filgueiras *et al.*1994), in previously mentioned locations. One to three fertile individuals of each species were collected and, after processed, deposited at the Herbarium Dr. Roberto Michael Klein (FURB). When necessary, we collected sterile samples, and these were grown in a greenhouse until flowering. We identified the material searching in the literature, discussing with taxonomists and compared it to materials with other herbaria collections. Angiosperm species were classified according to the Angiosperm Phylogeny Group III (APG 2009), ferns according to Smith *et al.* (2006) and adaptations of Rothfels *et al.* (2012), Kramer and Green (1990) for Lycophytes and Christenhusz *et al.* (2011) for Gymnosperms.

We compiled data published in *Flora Ilustrada Catarinense* (Reitz 1965), and herbariums FURB, FLOR, HBR, BHCB, CESJ, CNMT, CRI, FUEL, HEPH, HUCS, HVAT, ICN, JOI, LUSC, MBM, MFS, RB, UEC and UPCB through the *CRIA* database, aiming to increment the herbaceous-shrub list species already sampled at PNSI. We considered in this study all vascular plants with a height equal to or less than 3 m that were using soil or rocks as substrate. We

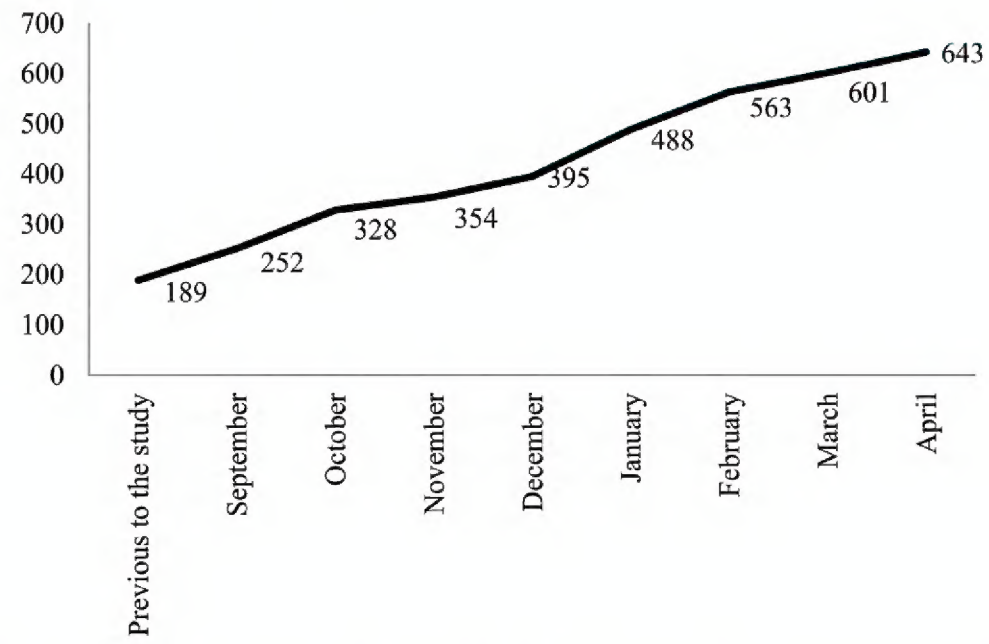

FIGURE 2. Collector curve by month of the species in the Parque Nacional da Serra do Itajaí, Itajaí Valley, Santa Catarina, Brazil. *Species previously collected and which were not collected in this study.

analyzed: species reported in the literature and collected species, new records for PNSI, new records for the state, exotic species, threatened species included at national and state red lists.

We classified the PNSI species by life form according to Raunkiaer (1934). A collector curve (Figure 2) was generated to determine if the species are well sampled. Field trips were made over a half year, during the warm season (September to April), to collect the specimens in reproductive stage. Plants which were not determined at species level were excluded from analysis to avoid overestimating the number of species.

RESULTS

We recorded 643 species from Parque Nacional da Serra do Itajaí (PNSI) (Table 1), these species were distributed in 486 (75.58%) Angiosperms with 86 families (78.18%); 145 (22.55%) fern species, with 21 families (21.81%); 11 species (1.71%) of Lycophytes into two families (1.9%) and one Gymnosperm (<1%). The ten most representative families are in Figure 3. The most abundant life forms were phanerophytes and hemicriptophytes (Figure 4). At least two species, *Thelypteris glaziovii* T.F. Reed (Thelypteridaceae) and *Pseudelephantopus spiralis* Cronquist (Asteraceae) is confirmed to be a new record for Santa Catarina state.

A total of 215 herbaceous and shrubs species (33.17%) were not collected in this study, when compared to

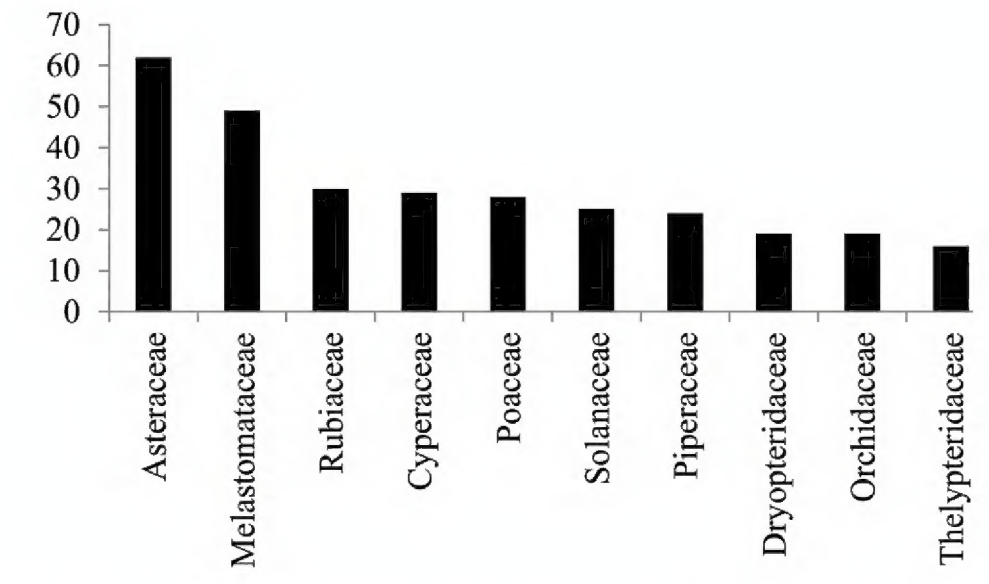

FIGURE 3. Ten most representative families in number of species in the herbaceous and shrubby of the Parque Nacional da Serra do Itajaí, Itajaí Valley, Santa Catarina, Brazil.

literature or CRIA data base. We found during the field trips 428 species, and 217 (33.74%) are new records for PNSI.

From the 643 species recorded in this study, 22 were exotic species (Table 1). We also found five threatened species and a new species of *Rhynchospora* Vahl is been described.

Discussion

The importance of this Protected Areas for Atlantic Subtropical Rainforest (southern Brazil) biodiversity protection is proved, once again, by its richness. Adding up the tree species researched by the Management Plan of PNSI (Brasil 2009), where 340 tree and shrub species were recorded, as well as collections made by other researchers in PNSI, until now there were recorded 1,086 species of vascular.

We found epiphytes species in herbaceous stratum, growing over the leaf litter layer on top of Morro do Sapo and Spitzkopf such as *Prosthechea bulbosa* (Vell.) W.E. Higgins, *Prosthechea vespa* (Vell.) W.E. Higgins and *Coppensia flexuosa* (Lodd.) Campacci (Orchidaceae), *Vriesea erythrodactylon* (E. Morren) E. Morren ex Mez, *Vriesea rodigasiana* E. Morren and *Nidularium innocentii* Lem. (Bromeliaceae), *Pleiochiton blepharodes* (DC.) Reginato *et al.* (Melastomataceae) and species of *Nematanthus* Schrad. (Gesneriaceae) as has already been reported by Klein (1980).

The new record *Thelypteris glaziovii* had already been reported by Ponce (1998) in Santa Catarina and Rio Grande do Sul states, but no voucher was presented. Salino and Semir (2004) reduced its distribution only to southeastern Brazil, and more recently over a collection in Serra do Capivari, Campina Grande do Sul (Paraná), Schwartsburd and Xavier de Lima (2008) increased its distribution to Paraná state. Now we can confirm the reported made by Ponce (1998). *Pseudelphantopus spiralis* is a small ruderal herb, which a population of aproximated five individuals was found in a short stretch of the Spitzkopf's trail. Is quoted by flora of Brazil with distribution in the states of Bahia, São Paulo and Acre. Possibly, as it is similar with ruderal species *Elephantopus mollis,* is poorly sampled.

The 22 exotic species in PNSI, four ferns (*Deparia petersenii* (Kunze) M. Kato, *Macrothelypteris torresiana* (Gaudich.) Ching, *Nephrolepis pectinata* (Willd.) Schott. and *Thelypteris dentata* (Forssk.) E.P. St. John, which have already been registered by Gasper and Sevegnani (2010) and 17 angiosperms: *Thunbergia alata* Bojer ex Sims, *Centella asiatica* (L.) Urb., *Bidens pilosa* L., *Galinsoga parviflora* Cav., *Tithonia diversifolia* (Emsl.) A. Gray, *Youngia japonica* (L.) DC., *Impatiens walleriana* Hook.f., *Cardamine bonariensis* Juss. ex Pers, *Drymaria cordata* (L.) Willd. ex Schult., *Stellaria media* (L.) Vill., *Tradescantia zebrina* Bosse, *Sechium edule* (Jacq.) Sw., *Psidium guajava* L., *Plantago major* L., *Eleusine indica* (L.) Gaertn., *Brugmansia suaveolens* (Humb. & Bompl. ex Willd.) Bercht. & J. Presl, *Pilea microphylla* (L.) Liebm. and *Hedichyum coronarium* J.Koenig (Lista de Espécies da Flora do Brasil 2013; Schneider 2007).

Most of these exotic species were found near Spitzkopf, where in the past, some areas were used for agriculture and cattle. Likely, intense visits in the other areas studied

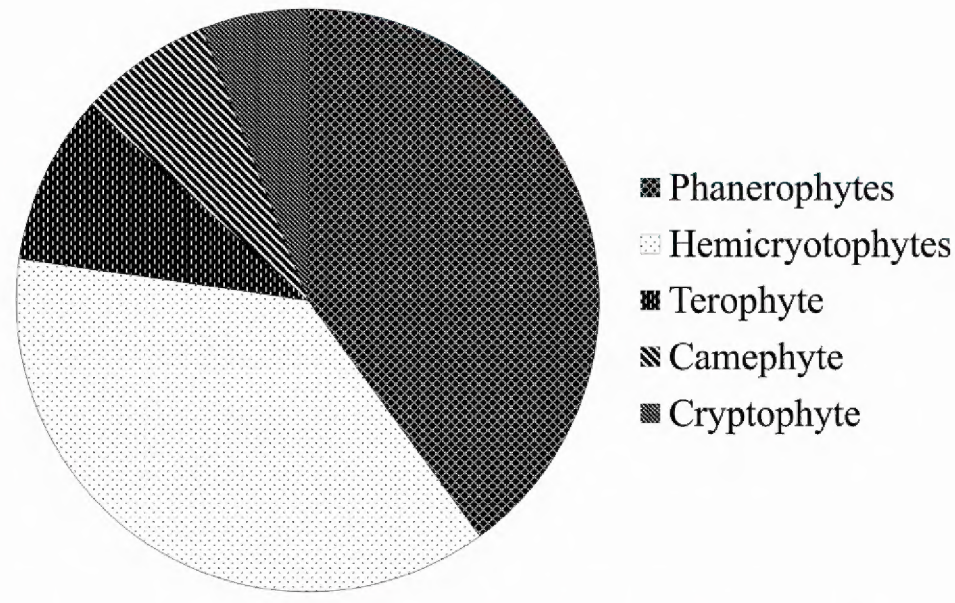

Figure 4. Distribution of the number of species in five forms sampled in the Parque Nacional da Serra do Itajaí, Itajaí Valley, Santa Catarina, Brazil.

may explain the fact, since many exotic species are closely related to human presence, current or past (Wright 2005). In the tracks margins we found some important invasive species such as *Impatiens walleriana* and *Hedichyum coronarium* with dense populations close to watercourse.

Five species in the PNSI are threatened, that is why we should consider important the conservation of this area. Two of these were already known by previous collections for PNSI, especially xaxim-bugio (*Dicksonia sellowiana* Hook.), as quoted by Gasper and Sevegnani (2010), classified as Critically Endangered (CR) in SC state and in Brazil as Vulnerable (VU), especially due to commercial exploitation (Windisch 2002). *Heliconia farinosa* Raddi (VU) is treated as threatened on the national list of IBAMA (2008), but apparently it is a common species in PNSI, often found in lowland areas, next to watercourses. *Microlepia speluncae* (L.T. Moore) was considered probably extinct (EX) in the state list of endangered species, but we found a small population in RPPN Bugerkopf. *Piper ulei* C. DC. (VU) was also found in a location close to a watercourse in Morro do Sapo, where there were some individuals, and finally, *Vanilla dietschiana* (Edwal) Garay. (VU) was found only once, an individual with several vegetative seedlings, from which a sample was collected in RPPN Bugerkopf.

According to the samples curve, the number of species for PNSI is not stabilized, since it remained tilted, showing that the Parque Nacional da Serra do Itajaí is a extremely rich area, and 1,086 vascular plant species does not express its real richness. PNSI represents 0.6% of the state territory, yet its richness corresponds to nearly 22.6% of the total species described in Santa Catarina. Thus, we confirm the need for more research in the field in order to try to unravel the true biodiversity that this area hosts. The presence of three species categorized as threatened, and two new records for the state, besides a new species reinforces the importance of this area for the conservation of Atlantic Subtropical Rainforest remnants. On the other hand, the presence of exotic species points out this area vulnerability, especially in areas of strong human influence.

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Table 1. Species list of Parque Nacional da Serra do Itajaí. FV: Life form, CA: camephytes, CR: criptophytes, H: hemicriptophytes, F: phanerophytes, T: therophytes and voucher Herbário FURB (Collectors: LAF: L.A. Funez, RR: R. Reitz,TJC: T.J. Cadorin, DBF: D.B. Falkenberg, AR: A. Reis, CRG: C.R. Grippa, ALG: A.L. de Gasper, MV: M. Verdi, RMK: R.M. Klein, ASS: A. Stival-Santos, AS: A. Salino, OSR: O.S. Ribas, AK: A. Korte, EC: E. Caglioni, NLS: N.L. de Souza, SD: S. Dreveck, JPM: J.P. Maçaneiro, MS: M. Sobral, MLS: M.L. Souza, LS: L. Sevegnani, DRL: D.R. da Luz, EK: E. Kiehn, FB: F.Bosio, AD: A. Domingos, RRP: R.R. Passold, LMC: L.M. Ceolin, FS: F. Steinbach, LBS: L.B. Smith.). The numbers represent the number of genera and species per family. *exotic species, ** threatened in SC, ***threatened in Brazil.

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Ferns & lycophytes		
Anemiaceae 1/3		
Anemia phyllitidis (L.) Sw.	H	LAF 1032
Anemia raddiana Link	H	ALG 546
Anemia tomentosa (Savigny) Sw.	H	LAF 1566
Aspleniaceae 2/10		
Asplenium abscissum Willd.	H	ALG 2487
Asplenium brasiliense Raddi	H	LAF 964
Asplenium cirrhatum Rich. ex Willd.	H	ALG 868
Asplenium claussenii Hieron.	H	ALG 549
Asplenium inaequilaterale Willd.	H	LAF 1940
Asplenium kunzeanum Klotzsch ex Rosenst.	H	LAF 1151
Asplenium martianum C. Chr.	H	LAF 1072
Asplenium pseudonitidum Raddi	H	ALG 813
Asplenium uniseriale Raddi	H	LS s/n
Hymenasplenium triquetrum (N. Murak. & R.C. Moran) L. Regalado & Prada	H	LAF 1716
Athyridaceae 2/10		
Deparia peterseni (Kunze) M.Kato*	H	LAF 1164
Diplazium ambiguum Raddi	H	LAF 1938
Diplazium asplenioides (Kunze) C. Presl	H	LAF 1714
Diplazium cristatum (Desr.) Alston	H	LAF 889
Diplazium leptocarpon Fée	H	ALG 971
Diplazium lindbergii (Mett.) Christ	H	AS 14798
Diplazium plantaginifolium (L.) Urb.	H	LAF 945
Diplazium riedelianum (Bong. ex Kuhn) Kuhn ex C. Chr.	H	LAF 1906
Diplazium rostratum Fée	H	LAF 1625
Diplazium turgidum Rosenst.	H	LAF 2043
Blechnaceae 2/11		
Blechnum acutum (Desv.) Mett.	H	LAF 950

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Blechnum austrobrasilianum de la Sota	H	LAF 1808
Blechnum brasiliense Desv.	CA	LAF 922
Blechnum cordatum (Desv.) Hieron.	CA	LAF 1098
Blechnum divergens (Kunze) Mett.	CA	LAF 1000
Blechnum occidentale L.	H	LAF 1806
Blechnum polypodioides Raddi	H	LAF 871
Blechnum sampaioanum Brade	H	ALG 578
Blechnum schomburgkii (Klotzsch) C. Chr.	CA	AK 3479
Blechnum unilaterale Sw.	H	DBF 6190
Salpichlaena volubilis (Kaulf.) Hook.	H	LAF 962
Cyatheaceae 1/6		
Cyathea atrovirens (Langsd. & Fisch.) Domi	F	LAF 1904
Cyathea corcovadensis (Raddi) Domin	F	LAF 1962
Cyathea delgadii Sternb.	F	RR 2262
Cyathea hirsuta C. Presl	F	LAF 1096
Cyathea phalerata Mart.	F	LAF 2044
Cyathea uleana (Samp.) Lehnert	F	EC 112
Dennstaedtiaceae 6/8		
Blotiella lindeniana (Hook.) R.M. Tryon	H	RR 3456
Dennstaedtia cicutaria (Sw.) T. Moore	H	ALG 589
Dennstaedtia dissecta (Sw.) T. Moore	H	LAF 1622
Dennstaedtia obtusifolia (Willd.) T. Moore	H	ALG 590
Histiopteris incisa (Thunb.) J. Sm.	H	LAF 1068
Hypolepis acantha Schwartsb.	H	LAF 1857
Microlepia speluncae (L.) T. Moore**	H	LAF 959
Pteridium arachnoideum (Kaulf.) Maxon	H	LAF 1576
Dryopteridaceae 11/19		
Ctenitis anniesii (Rosenst.) Copel.	H	LAF 1189
Ctenitis laetevirens Salino & Morais	H	LAF 1701
Ctenitis pedicellata (H. Christ) Copel.	H	LAF 1165
Didymochlaena truncatula (Sw.) J.Sm.	H	LAF 941
Elaphoglossum lingua (C. Presl) Brack.	H	LAF 1565
Elaphoglossum vagans (Mett.) Hieron.	H	LAF 1249
Lastreopsis amplissima (C. Presl) Tindale	H	LAF 1250
Lomagramma guianensis (Aubl.) Ching	H	ALG 869
Megalastrum abundans (Rosenst.) A.R. Sm. & R.C. Moran	CA	ALG 2496
Megalastrum connexum (Kaulf.) A.R. Sm. & R.C. Moran	CA	LAF 1076
Megalastrum oreocharis Salino & Ponce	CA	LAF 1717
Mickelia scandens (Raddi) R.C. Moran *et al.*	H	NLS 4
Olfersia cervina (L.) Kunze	H	ALG 853
Polybotrya cylindrica Kaulf.	H	LAF 958
Polystichum montevidense (Spreng.) Rosenst.	H	ALG 2472
Rumohra adiantiformis (G.Forst.) Ching	H	LAF 1607
Stigmatopteris brevinervis (Fée) R.C. Moran	H	LAF 1942
Stigmatopteris caudata (Raddi) C. Chr.	H	LAF 1142
Stigmatopteris heterocarpa (Fée) Rosenst.	H	LAF 939
Dicksoniaceae 2/2		
Dicksonia sellowiana Hook.***	F	ALG 593
Lophosoria quadripinnata (J.F. Gmel.) C. Chr.	H	LAF 1006
Gleicheniaceae 3/7		
Dicranopteris flexuosa (Schrad.) Underw.	H	LAF 1144
Dicranopteris nervosa (Kaulf.) Maxon	H	LAF 2052
Gleichenella pectinata (Willd.) Ching	H	LAF 1307
Sticherus bifidus (Willd.) Ching	H	LAF 1001
Sticherus lanuginosus (Fée) Nakai	H	ALG 626
Sticherus nigropaleaceus (Sturm) J. Prado	H	LAF 2046
Sticherus squamosus (Fée) J. Gonzáles	H	LAF 1223
Hymenophyllaceae 3/6		
Abrodictyum rigidum (Sw.) Ebiharaand Dubuisson	H	LAF 1949
Trichomanes cristatum Kaulf.	H	ALG 2456
Trichomanes elegans Rich.	H	LAF 1524
Trichomanes pilosum Raddi	H	LAF 1516
Vandenboschia radicans (Sw.) Copel.	H	LAF 879
Vandenboschia rupestris (Raddi) Ebihara & K. Iwats.	H	ALG 2479
Lindsaeaceae 1/5		
Lindsaea arcuata Kunze	H	ALG 964
Lindsaea bifida (Kaulf.) Mett. ex Kuhn	H	ALG 650
Lindsaea lancea (L.) Bedd.	H	LAF 873
Lindsaea ovoidea Fée	H	LAF 944
Lindsaea quadrangularis Raddi	H	LAF 1246
Lomoriopsidaceae 2/2		
Lomariopsis marginata (Schrad.) Kuhn	H	ALG 665
Nephrolepis pectinata (Willd.) Schott*	H	ALG 558
Lycopodiaceae 5/6		
Diphasiastrum thyoides (Humb. & Bonpl. ex Willd.) Holub	H	LAF 1529
Palhinhaea camporum (B. Øllg. & P.G. Windisch) Holub	H	LAF 1008
Palhinhaea cernua (L.) Franco & Vasc.	H	LAF 1031
Phlegmariurus reflexus (Lam.) B. Øllg.	CA	ALG 975
Pseudolycopodiella carolinieana (L.) Holub	H	ALG 670
Lycopodium clavatum L.	H	LAF 1225
Lygodiaceae 1/1		
Lygodium volubile Sw.	H	LAF 1533
Marattiaceae 3/5		
Danaea geniculata Raddi	CA	ALG 678
Danaea moritziana C. Presl	CA	LAF 938
Danaea nodosa (L.) Sm.	CA	LAF 1726
Eupodium kaulfussii (J. Sm.) Hook.	CA	LAF 1608
Marattia cicutifolia Kaulf.	CA	LAF 2055
Osmundaceae 2/2		
Osmunda regalis L.	H	ALG 821
Osmundastrum cinnamomeum (L.) C. Presl	H	ALG 2470
Polypodiaceae 5/12		
Campyloneurum acrocarpon Fée	H	LAF 1907
Campyloneurum minus Fée	H	LAF 957
Campyloneurum nitidum (Kaulf.) C. Presl	H	LS s/n
Niphidium crassifolium (L.) Lellinger	H	ALG 579
Pecluma chnoophora Salino & Costa Assis	H	ALG 722
Pecluma recurvata (Kaulf.) M.G. Price	H	LAF 1075
Pleopeltis hirsutissima (Raddi) de la Sota	H	LAF 2069
Pleopeltis lepidopteris de la Sota	H	LS s/n
Serpocaulon catharinae (Langsd. & Fisch.) A.R. Sm.	H	LAF 946
Serpocaulon fraxinifolium (Jacq.) A.R. Sm.	H	LAF 2018
Serpocaulon latipes (Langsd. & L.Fisch.) A.R. Sm.	H	ALG 732
Serpocaulon vacillans (Link) A.R. Sm.	H	ALG 733
Pteridaceae 6/12		
Adiantopsis chlorophylla (Sw.) Fée	H	ALG 2443
Adiantum pentadactylon Langsd. & Fisch.	H	LAF 1730
Adiantum raddianum C. Presl	H	LAF 604
Doryopteris collina (Raddi) J. Sm.	H	ALG 737
Doryopteris crenulans (Fée) H. Christ	H	ALG 2492
Jamesonia myriophylla (Sw.) Christenh.	H	ALG 738
Pityrogramma calomelanos (L.) Link	H	LAF 1563
Pteris altissima Poir.	H	LAF 1725
Pteris decurrens C. Presl	H	LAF 1515
Pteris lechleri Mett.	H	ALG 742

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Pteris podophylla Sw.	H	LAF 1911
Pteris splendens Kaulf.	H	ALG 743
Saccolomataceae 1/2		
Saccoloma inaequale (Kunze) Mett.	H	LAF 970
Saccoloma elegans Kaulf.	H	LAF 952
Schizaeaceae 1/1		
Schizaea elegans (Vahl) Sw.	H	LAF 1706
Salviniaceae 1/1		
Salvinia minima Baker	H	LS s/n
Selaginellaceae 1/5		
Selaginella contigua Baker	H	LAF 1508
Selaginella decomposita Spring	H	LAF 1019
Selaginella flexuosa Spring	H	LAF 1512
Selaginella muscosa Spring	H	LAF 1509
Selaginella sulcata (Desv. ex Poir.) Spring ex Mart.	H	LAF 1511
Tectariaceae 1/4		
Tectaria buchtienii (Rosenst.) Maxon	H	LAF 1078
Tectaria incisa Cav.	H	LAF 1684
Tectaria pilosa (Fée) R.C. Moran	H	LAF 884
Tectaria vivipara Jermy & T.G. Walker	H	LAF 1718
Thelypteridaceae 2/16		
Macrothelypteris torresiana (Gaudich.) Ching*	H	LAF 994
Thelypteris amambayensis Ponce	H	LAF 1498
Thelypteris conspersa (Schrad.) A.R. Sm.	H	LAF 1811
Thelypteris decurtata (Kunze) de la Sota	H	LAF 1814
Thelypteris dentata (Forssk.) E.P. St.John*	H	LAF 998
Thelypteris glaziovii (Christ) C.F. Reed	H	LAF 1066
Thelypteris gymnosora Ponce	H	LAF 1177
Thelypteris longifolia (Desv.) R.M. Tryon	H	LAF 1724
Thelypteris opposita (Vahl) Ching	H	LAF 1519
Thelypteris pachyrhachis (Kunze ex Mett.) Ching	H	LAF 1735
Thelypteris ptarmica (Kunze) C.F. Reed	H	ALG 961
Thelypteris raddii Ponce	H	ALG 955
Thelypteris recumbens (Rosenst.) C.F. Reed	H	LAF 1793
Thelypteris regnelliana (C. Chr.) Ponce	H	LAF 1030
Thelypteris retusa C.F. Reed	H	LAF 1017
Thelypteris vivipara (Raddi) C.F. Reed	H	LAF 887
Gymnosperms		
Podocarpaceae 1/1		
Podocarpus sellowii Klotzsch ex Endl.	F	MS s/n
Angiosperms		
Acanthaceae 7/9		
Aphelandra chamissoniana Nees	F	LAF 929
Aphelandra liboniana Linden ex Hook. f.	F	LAF 1070
Hygrophila costata Nees	T	LAF 1491
Justicia carnea Lindl.	F	LAF 917
Mendoncia puberula Mart.	F	LAF 2065
Mendoncia velloziana Mart.	F	LAF 932
Ruellia brevifolia (Pohl) C. Ezcurra	F	LAF 1847
Staurogyne eustachya Lindau	CA	LAF 1148
Thunbergia alata Bojer ex Sims*	F	LAF 1788
Amaranthaceae 4/5		
Alternanthera philoxeroides (Mart.) Griseb.	H	LAF 1493
Alternanthera tenella Colla	H	LAF 1758
Celosia grandifolia Moq.	CA	LAF 910
Chamissoa altissima (Jacq.) Kunth	F	LAF 1613
Hebanthe pulverulenta Mart.	F	RR 9695
Apiaceae 1/1		
Centella asiatica (L.) Urb.*	H	LAF 1071
Apocynaceae 3/5		
Forsteronia leptocarpa (Hook. & Arn.) A. DC.	F	TJC 761
Mandevilla atroviolacea (Stadelm.) Woodson	F	MS s/n
Mandevilla immaculata Woodson	F	AR 842
Mandevilla urophylla (Hook.)Woodson	F	LAF 1531
Oxypetalum pedicellatum Decne.	F	DBF 4832
Aquifoliaceae 1/3		
Ilex dumosa Reissek	F	CRG 596
Ilex microdonta Reissek	F	MS s/n
Ilex theezans Mart.	F	LAF 1611
Araceae 3/6		
Anthurium acutum N.E. Br.	CA	LAF 1245
Anthurium pentaphyllum (Aubl.) G.Don	F	LAF 936
Asterostigma tweedianum Schott	CR	LAF 893
Philodendron appendiculatum Nadruzand Mayo	H	LAF 1220
Philodendron propinquum Schott	H	TJC 3049
Philodendron roseopetiolatum Nadruz & Mayo	H	ALG 2466
Araliaceae 3/4		
Dendropanax australis Fiaschi & Jung-Mend.	F	LAF 1720
Hydrocotyle leucocephala Cham. & Schltdl.	H	LAF 1073
Hydrocotyle pusilla A. Rich.	H	LAF 1514
Schefflera angustissima (Marchal) Frodin	F	MV 3607
Arecaceae 2/3		
Bactris setosa Mart.	F	LAF 1936
Geonoma pohliana Mart.	F	LAF 1860
Geonoma schottiana Mart.	F	LAF 965
Asteraceae 35/62		
Achyrocline satureoides (Lam.) DC.	T	LAF 1887
Adenostemma brasilianum (Pers.) Cass.	CA	LAF 1574
Ageratum conyzoides (L.) L.	T	LAF 920
Baccharis anomala DC.	T	LAF 1029
Baccharis conyzoides (Less.) DC.	T	LAF 1172
Baccharis crispa Spreng.	CA	LAF 1082
Baccharis lateralis Baker	F	LAF 1443
Baccharis malmei Joch. Müll.	F	LAF 2037
Baccharis microdonta DC.	F	LAF 1879
Baccharis montana DC.	F	DBF 3912
Baccharis oblongifolia (Ruiz & Pav.) Pers.	F	LAF 2051
Baccharis oxyodonta DC.	F	LAF 1922
Baccharis semiserrata DC.	F	LS s/n
Baccharis trimera (Less.) DC.	F	LAF s/n
Baccharis urvilleana Brongn.	F	DBF 3880
Baccharis vulneraria Baker	T	LAF 1222
Bidens pilosa L.*	T	LAF 1889
Calyptocarpus biaristatus (DC.) H. Rob.	T	LAF 1782
Chaptalia nutans (L.) Polák	CA	LAF 935
Chevreulia acuminata Less.	H	LAF 1881
Chromolaena laevigata (Lam.) R.M. King & H. Rob	F	LAF 1947
Conyza bonariensis (L.) Cronquist	T	DRL s/n
Conyza primulifolia (Lam.) Cuatrec. & Lourteig	T	LAF 1864
Critoniopsis quinqueflora (Less.) H. Rob.	F	EK s/n
Cyrtocymura scorpioides (Lam.) H. Rob.	F	LAF 1093
Eclipta prostrata (L.) L.	T	LAF 1809
Elephantopus mollis Kunth	CA	LAF 1686
Erechtites hieracifolius (L.) Raf. ex DC.	T	LAF 1168
Erechtites valerianifolius (Link ex Spreng.) DC.	T	LAF 921
Galinsoga parviflora Cav.*	T	LAF 1759
Gamochaeta coarctata (Willd.) Kerguélen	T	LS s/n
Gamochaeta simplicicaulis (Willd. ex Spreng.) Cabrera	T	LAF 1047

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Heterocondylus alatus (Vell.) R.M. King & H. Rob.	F	LS s/n
Jaegeria hirta (Lag.) Less.	T	LAF 992
Leptostelma maximum D. Don	T	LAF 1558
Mikania buddleiaefolia DC.	F	RR 3804
Mikania glomerata Spreng.	F	RR 8966
Mikania hoffmanniana Dusén ex Malme	F	RR 9218
Mikania involucrate Hook. & Arn.	F	RR 3915
Mikania lanuginosa DC.	F	LS s/n
Mikania lindbergii Baker	F	RR 9140
Mikania rufescens Sch. Bip. ex Baker	F	RR 9627
Mikania sericea Hook. & Arn.	F	FB s/n
Mikania smaragdina Dusén ex Malme	F	RMK 2436
Pentacalia desiderabilis (Velloso) Cuatrec.	F	ALG 538
Piptocarpha axillaris (Less.) Baker	F	AD s/n
Piptocarpha oblonga (Gardner) Baker	F	LAF 1033
Piptocarpha quadrangularis (Vell.) Baker	F	LAF 1186
Piptocarpha regnellii (Sch. Bip.) Cabrera	F	RRP s/n
Pluchea sagittalis Less.	T	LAF 1898
Praxelis pauciflora (Kunth) R.M. King & H. Rob.	T	LAF 1513
Pseudelephantopus spiralis Cronquist	T	LAF 1804
Pterocaulon alopecuroides (Lam.) DC.	T	LAF 1917
Senecio brasiliensis (Spreng.) Less.	T	ALG 2464
Solidago chilensis Meyen	T	LAF 1888
Steyermarkina pyrifolia (DC.) R.M. King & H. Rob.	T	RR 8964
Symphyopappus itatiayensis (Hieron.) R.M. King & H. Rob.	T	MS s/n
Tithonia diversifolia (Hemsl.) A. Gray*	F	LAF 1205
Trixis lessingii DC.	T	ASS 1350
Vernonanthura montevidensis (Spreng.) H. Rob.	T	LAF 1821
Vernonanthura tweediana (Baker) H. Rob.	T	DRL s/n
Youngia japonica (L.) DC.*	CA	LAF 1555
Balsaminaceae 1/1		
Impatiens walleriana Hook.f.*	CA	LAF 1752
Begoniaceae 1/9		
Begonia angulata Vell.	CA	LAF 1745
Begonia capanemae Brade	CA	LAF1704
Begonia convolvulacea (Klotzsch) A. DC.	H	LAF 961
Begonia fischeri Schrank	CA	LAF 1226
Begonia fruticosa (Klotzsch) A. DC.	H	LAF 875
Begonia hammoniae Irmsch.	F	LAF 2038
Begonia hispida Schott ex A. DC.	H	RR s/n
Begonia radicans Vell.	H	LAF 1063
Begonia semperflorens Link & Otto	CA	LAF 1041
Bignoniaceae 2/2		
Fridericia chica (Bonpl.) L.G. Lohmann	F	DBF 3918
Tanaecium pyramidatum (Rich.) L.G. Lohmann	F	LAF 1237
Brassicaceae 1/1		
Cardamine bonariensis Juss. ex Pers.*	T	LAF 2073
Bromeliaceae 2/5		
Nidularium innocentii Lem.	H	LAF 1482
Vriesea carinata Wawra	H	LAF 928
Vriesea incurvata Gaudich.	H	LAF 1217
Vriesea erythrodactylon (E.Morren) E. Morren ex Mez	H	LAF 1734
Vriesea rodigasiana E.Morren	H	LAF 1481
Campanulaceae 2/2		
Lobelia xalapensis Kunth	T	LAF 1025
Siphocampylus convolvulaceus (Cham.) G. Don	F	LBS 6276
Cannaceae 1/1		
Canna indica L.	CR	LAF 1751
Cleomaceae 1/1		
Cleome parviflora Kunth	T	LAF 1239
Caprifoliaceae 1/1		
Valeriana scandens L.	F	LAF 1015
Caryophyllaceae 2/2		
Drymaria cordata (L.) Willd. ex Schult.*	T	LAF 2032
Stellaria media (L.) Vill.*	T	LAF 2027
Celastraceae 1/2		
Maytenus boaria Molina	F	s/coletor
Maytenus evonymoides Reissek	F	AK 6141
Clethraceae 1/1		
Clethra scabra Pers.	F	LAF 1530
Clusiaceae 1/1		
Clusia criuva Cambess.	F	LAF 1543
Commelinaceae 4/7		
Commelina diffusa Burm.f.	H	LAF 1849
Commelina obliqua Vahl	H	LAF 1227
Dichorisandra paranaensis D. Maia *et al.*	H	LAF 1523
Tradescantia fluminensis Vell.	H	LAF 1285
Tradescantia zanonia (L.) Sw.	H	LAF 1680
Tradescantia zebrina Bosse*	H	LAF 2061
Tripogandra diuretica (Mart.) Handlos	H	LAF 1238
Convolvulaceae 1/1		
Merremia dissecta (Jacq.) Hallier f.	F	LAF 1819
Costaceae 1/1		
Costus scaber Ruizand Pav.	CR	LAF 1232
Cucurbitaceae 3/3		
Cayaponia pilosa (Vell.) Cogn.	H	TJC 725
Sechium edule (Jacq.) Sw.*	H	LAF 1792
Wilbrandia ebracteata Cogn.	H	LAF 1085
Cunoniaceae 2/2		
Lamanonia ternata Vell.	H	CRG 592
Weinmannia discolor Gardner	H	RMK 2373
Cyclanthaceae 1/1		
Asplundia polymera (Hand.-Mazz.) Harling	H	LAF 1605
Cyperaceae 10/29		
Becquerelia cymosa Brongn.	CR	LAF 927
Carex brasiliensis A. St.-Hil.	CR	ALG 2463
Carex seticulmis Boeckeler	CR	LAF 1023
Cyperus andreanus Maury	CR	LAF 1162
Cyperus chalaranthus J. Presl & C. Presl	CR	LAF 1010
Cyperus esculentus L.	CR	LAF 1559
Cyperus haspan L.	CR	LAF 1918
Cyperus hermaphroditus (Jacq.) Standl.	CR	LAF 1560
Cyperus luzulae (L.) Retz.	CR	LAF 1568
Cyperus virens Michx.	CR	LAF 997
Eleocharis debilis Kunth	H	LAF 1614
Eleocharis maculosa (Vahl) Roem. & Schult.	H	LAF 1873
Eleocharis minima Kunth	H	LAF 1149
Eleocharis sellowiana Kunth	H	LAF 1874
Fimbristylis dichotoma (L.) Vahl	CR	LAF 1789
Kyllinga odorata Vahl	CR	LAF 1206
Kyllinga pumila Michx.	CR	LAF 1554
Pleurostachys foliosa Kunth	H	LAF 1084
Pleurostachys gaudichaudii Brongn.	H	LAF 925
Pleurostachys stricta Kunth	H	LAF 1013
Pleurostachys urvillei Brongn.	H	LAF 967
Pycreus lanceolatus (Poir.) C.B. Clarke	CR	LAF 1484
Pycreus polystachyos (Rottb.) P. Beauv.	CR	LAF 267
Rhynchospora nervosa (Vahl) Boeckeler	CR	LAF 1483

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Rhynchospora sp. nov.	CR	LAF 1798
Scleria distans Poir.	H	LAF 1539
Scleria latifolia Sw.	H	LAF 911
Scleria panicoides Kunth	H	LAF 914
Scleria secans (L.) Urb.	H	LAF 1086
Ericaceae 2/3		
Agarista eucalyptoides (Cham. & Schltdl.) G.Don	F	LS s/n
Agarista niederleinii (Sleumer) Judd	F	RMK 2313
Gaylussacia brasiliensis (Spreng.) Meisn.	F	CRG s/n
Erythroxylaceae 1/2		
Erythroxylum amplifolium Baill.	F	LS s/n
Erythroxylum vaccinifolium Mart.	F	LS s/n
Euphorbiaceae 5/5		
Acalypha gracilis Spreng.	F	LAF 1619
Actinostemon concolor (Spreng.) Müll. Arg.	F	ALG 2523
Aparisthmium cordatum (A. Juss.) Baill.	F	LAF 1528
Croton celtidifolius Baill.	F	ASS 1320
Sebastiania argutidens Pax & K.Hoffm.	F	LS s/n
Fabaceae 5/7		
Dahlstedtia pentaphylla (Taub.) Burkart	F	LAF 1505
Dalbergia frutescens (Vell.) Britton	F	ASS 1306
Desmodium adscendens (Sw.) DC.	H	LAF 1902
Desmodium incanum DC.	H	LAF 1174
Desmodium subsericium Malme	CA	DBF 3955
Erythrina speciosa Andrews	F	RR8970
Inga marginata Kunth	F	LAF 1170
Gentianaceae 1/1		
Macrocarpaea rubra Malme	T	LAF 1083
Gesneriaceae 2/3		
Nematanthus australis Chautems	CA	LAF 2033
Nematanthus fissus (Vell.) L.E. Skog	CA	LAF 2027
Sinningia curtiflora (Malme) Chautems	CR	LAF 1604
Gratiolaceae 3/3		
Bacopa stricta (Schrad.) Wettst. ex Edwall	T	MLS 821
Scoparia dulcis L.	T	LAF 1494
Stemodia trifoliata (Link) Rchb.	T	LAF 1243
Stemodia verticillata (Mill.) Hassl.	T	LAF 1756
Griseliniaceae 1/1		
Griselinia ruscifolia (Gay) Ball	F	TJC 2587
Heliconiaceae 1/1		
Heliconia farinosa Raddi***	CR	LAF 892
Hypoxidaceae 1/1		
Hypoxis decumbens L.	CR	LAF 1502
Iridaceae 1/2		
Sisyrinchium palmifolium L.	H	ASS 1352
Sisyrinchium vaginatum Spreng.	H	LAF 1248
Juncaceae 1/2		
Juncus microcephalus Kunth	H	LAF 1208
Juncus tenuis Willd.	H	LAF 1233
Lamiaceae 5/8		
Aegiphila obducta Vell.	F	LAF 2081
Hyptis fasciculata Benth.	T	DRL s/n
Hyptis heterodon Epling	T	LAF 1892
Hyptis inodora Schrank	T	LAF 1088
Hyptis lacustris A. St.-Hil. ex Benth.	T	LAF 1807
Marsypianthes chamaedrys (Vahl) Kuntze	T	LAF 1242
Ocimum carnosum (Spreng.) Link & Otto ex Benth.	CA	LAF 1197
Peltodon radicans Pohl	H	LAF 1812
Lauraceae 1/1		
Endlicheria paniculata (Spreng.) J.F. Macbr.	F	LAF 1886
Linderniaceae 2/3		
Lindernia diffusa (L.) Wettst.	T	LAF 1526
Lindernia rotundifolia (L.) Alston	T	LAF 1883
Micranthemum umbrosum (Walter ex J.F. Gmel.)	H	LAF 1882
Loganiaceae 1/2		
Spigelia pusilla Mart.	CA	LAF 1018
Spigelia tetraptera Taub.	F	LAF 1210
Lythraceae 2/4		
Cuphea calophylla Cham. & Schltdl.	CA	LAF 1503
Cuphea carthagenensis (Jacq.) J.F. Macbr.	CA	LAF 1178
Cuphea racemosa (L.f.) Spreng.	CA	LAF 995
Heimia apetala (Spreng.) S.A. Graham & Gandhi	F	LAF 1490
Malpighiaceae 2/2		
Bunchosia fluminensis Griseb.	F	LAF 930
Byrsonima ligustrifolia Mart.	F	FST s/n
Malvaceae 4/7		
Byttneria australis A. St.-Hil.	F	LAF 1732
Pavonia fruticosa (Mill.) Fawc. & Rendle	F	LMC s/n
Pavonia nemoralis A. St.-Hil.	F	LAF 1542
Sida planicaulis Cav.	CA	LAF 1564
Sida rhombifolia L.	CA	LAF 1179
Triumfetta rhomboidea Jacq.	F	LAF 1848
Triumfetta semitriloba Jacq.	F	LAF 2021
Marantaceae 4/6		
Calathea monophylla (Vell.) Körn.	CR	LAF 1231
Ctenanthe lanceolata Peterson	CR	LAF 1532
Ctenanthe muellerii Petersen	CR	LAF 1143
Ctenanthe setosa (Roscoe) Eichler	CR	LAF 1596
Maranta divaricata Roscoe	CR	LAF 1957
Stromanthe papillosa Petersen	CR	LAF 1616
Marcgraviaceae 1/1		
Schwartzia brasiliensis (Choisy) Bedell ex Gir.-Cañas	F	LAF 1699
Melastomataceae 6/49		
Bertolonia acuminata Gardner	CA	LAF 1541
Bertolonia mosenii Cogn.	CA	LAF 1687
Leandra acutiflora (Naudin) Cogn.	F	LAF 1254
Leandra australis (Cham.) Cogn.	F	ALG 819
Leandra barbinervis (Cham. ex Triana) Cogn.	F	FB s/n
Leandra bergiana Cogn.	F	LAF 1781
Leandra carassana (DC.) Cogn.	F	LAF 1621
Leandra dasytricha (A. Gray) Cogn.	F	LAF 1200
Leandra echinata Cogn.	F	LAF 1092
Leandra fallax (Cham.) Cogn.	F	LAF 1064
Leandra fragilis Cogn.	F	ALG 973
Leandra glazioviana Cogn.	F	LAF 1050
Leandra hirtella Cogn.	F	LAF 1214
Leandra horrida Cogn.	F	RR 8972
Leandra kleinii Brade	F	RR 563
Leandra laevigata Cogn.	F	LAF 1198
Leandra laxa Cogn.	F	MS s/n
Leandra melastomoides Raddi	F	LAF 1624
Leandra planifilamentosa Brade	F	LAF 1587
Leandra purpureovillosa Hoehne	F	LAF 1215
Leandra quinquedentata Cogn.	F	RMK 2374
Leandra regnellii (Triana) Cogn.	F	LAF 1043
Leandra reitzii Wurdack	F	MS s/n
Leandra scabra DC.	F	RMK 2362
Leandra sublanata Cogn.	F	MS 8638
Leandra tetraquetra Cogn.	F	LAF 1683

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Leandra xanthocoma (Naudin) Cogn.	F	ASS 1334
Miconia budlejoides Triana	F	AD s/n
Miconia chartacea Triana	F	LAF 1693
Miconia cubatanensis Hoehne	F	DBF 3836
Miconia inconspicua Miq.	F	CRG 619
Miconia lymanii Wurdack	F	RR 8994
Miconia sellowiana Naudin	F	ALG 2461
Miconia tristis Spring	F	SD 1033
Miconia valtheri Naudin	F	LAF 1580
Ossaea amygdaloides Triana	F	LAF 1213
Ossaea confertiflora (DC.) Triana	F	LAF 1685
Ossaea meridionalis D'El Rei Souza	F	LAF 1595
Ossaea sanguinea Cogn.	F	LAF 1517
Pleiochiton blepharodes (DC.) Reginato *et al.*	CA	LAF 1545
Pleiochiton ebracteatum Triana	CA	LAF 1863
Tibouchina catharinensis Brade	F	s/coletor
Tibouchina clinopodifolia (DC.) Cogn.	T	LAF 1065
Tibouchina dusenii Cogn.	F	MS s/n
Tibouchina mutabilis (Vell.) Cogn.	F	LAF 1180
Tibouchina pilosa Cogn.	F	LAF 1550
Tibouchina sellowiana Cogn.	F	FST s/n
Tibouchina urvilleana (DC.) Cogn.	F	LAF 1548
Tibouchina versicolor Cogn.	F	DBF 3895
Meliaceae 3/3		
Cabralea canjerana (Vell.) Mart.	F	CRG 572
Guarea macrophylla Vahl	F	LAF 1028
Trichilia pallens C. DC.	F	ASS 1335
Monimiaceae 1/2		
Mollinedia clavigera Tul.	F	MS s/n
Mollinedia schottiana (Spreng.) Perkins	F	AD s/n
Moraceae 2/2		
Dorstenia carautae C.C. Berg	CA	LAF 923
Sorocea bonplandii (Baill.) W.C. Burger *et al.*	F	JPM 31
Myrtaceae 4/7		
Eugenia kleinii D. Legrand	F	DBF 4831
Eugenia sclerocalyx D. Legrand	F	RR s/n
Eugenia uniflora L.	F	LAF 1492
Marlieria tomentosa Griseb.	F	TJC 1244
Myrceugenia alpigena (DC.) Landrum	F	MS s/n
Myrceugenia glaucescens (Cambess.) D. Legrand & Kausel	F	ASS 769
Psidium guajava L.*	F	LAF 1496
Nyctaginaceae 2/2		
Guapira opposita (Vell.) Reitz	F	CRG 566
Neea pendulina Heimerl	F	LAF 1039
Ochnaceae 2/3		
Ouratea parviflora Engl.	F	LAF 1729
Ouratea vaccinioides Engl.	F	LS s/n
Sauvagesia vellozii (Vell. ex A. St.-Hil.) Sastre	CA	LAF 1544
Onagraceae 2/2		
Fuchsia regia (Vand. ex Vell.) Munz	F	LAF 1062
Ludwigia longifolia (DC.) H. Hara	T	DBF 3883
Orchidaceae 14/19		
Aspidogyne decora (Rchb.f.) Garay & G.A. Romero	H	LAF 991
Brachystele camporum (Lindl.) Schltr.	H	DBF 6202
Cleistes libonii (Rchb. f.) Schltr.	CR	LAF 2062
Cleistes revoluta (Barb. Rodr.) Schltr.	CR	RR9619
Coppensia flexuosa (Lodd.) Campacci	H	LAF 1593
Corymborkis flava (Sw.) Kuntze	H	LAF 1944
Epidendrum secundum Jacq.	H	LAF 1594
Habenaria parviflora Lindl.	CR	LAF 1549
Malaxis excavata (Lindl.) Kuntze	H	AK 3353
Microchilus arietinus (Rchb. f. & Warm.) Ormerod	H	LAF 2212
Microchilus austrobrasiliensis (Porsch) Ormerod	H	LAF 1937
Prescottia densiflora (Brongn.) Lindl.	H	LAF 934
Prescottia stachyoides (Sw.) Lindl.	H	LAF 2113
Prosthechea bulbosa (Vell.) W.E. Higgins	H	LAF 1592
Prosthechea vespa (Vell.) W.E. Higgins	H	LAF 1479
Psilochilus dusenianus Kraenzl. ex Garay & Dunst.	H	TJC 1330
Psilochilus modestus Barb. Rodr.	H	LAF 1677
Sauroglossum nitidum (Vell.) Schltr.	H	LAF 2149
Vanilla dietschiana Edwall**	H	LAF 1707
Orobanchaceae 1/1		
Velloziella westermannii Dusén	F	LAF 2045
Oxalidaceae 1/2		
Oxalis hispidula Zucc.	CR	LAF 1007
Oxalis triangularis A. St.-Hil.	CR	LAF 1780
Passifloraceae 1/4		
Passiflora capsularis L.	F	LAF 969
Passiflora haematostigma Mart. ex Mast.	F	DBF 3904
Passiflora jilekii Wawra	F	LMC s/n
Passiflora truncata Regel	F	DBF 3807
Phrymaceae 1/1		
Mazus japonicus (Thunb.) Kuntze*	T	LAF 1755
Phyllanthaceae 1/2		
Phyllanthus caroliniensis Walter	T	LAF 1002
Phyllanthus lindbergii Müll. Arg.	T	LAF 1091
Phytolaccaceae 1/1		
Phytolacca thyrsiflora Fenzl ex J.A. Schmidt	T	LAF 1914
Piperaceae 2/24		
Peperomia alata Ruiz & Pav.	CA	LAF 1705
Peperomia glabella (Sw.) A. Dietr.	H	LAF 1012
Peperomia hispidula (Sw.) A. Dietr.	CA	LAF 1026
Peperomia ibiramana Yunck.	H	LAF 916
Peperomia renifolia Dahlst.	H	LAF 881
Peperomia urocarpa Fisch. & C.A. Mey.	H	LAF 876
Piper alnoides Kunth	F	LAF 1044
Piper amplum Kunth	F	LAF 1600
Piper arboreum Aubl.	F	LAF 1244
Piper caldense C. DC.	F	LAF 1601
Piper cernuum Vell.	F	LAF 1912
Piper corcovadensis (Miq.) C. DC.	F	AK 3345
Piper crassinervium Kunth	F	LAF 2022
Piper dilatatum Rich.	F	MS s/n
Piper gaudichaudianum Kunth	F	LAF 1741
Piper hispidum Sw.	F	LAF 908
Piper malacophyllum (C. Presl) C. DC.	F	LAF 1737
Piper mollicomum (Kunth) Steud.	F	LAF 1692
Piper mosenii C. DC.	F	LAF 907
Piper piritubanum Yunck.	F	ASS 1297
Piper reitzii Yunck.	F	ASS 1336
Piper rivinoides (Kunth) C. DC.	F	LAF 1959
Piper ulei C. DC.**	F	LAF 1820
Piper viminifolium Trel.	F	LAF 1801
Plantaginaceae 1/2		
Plantago major L.*	CA	LAF 1247
Plantago tomentosa Lam.	CA	LAF 1087
Poaceae 14/28		
Andropogon bicornis L.	T	LAF 1698
Bromus catharticus Vahl	T	RR 455

Table 1. *Continued.*

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Chusquea bambusoides (Raddi) Hack.	H	RR s/n
Chusquea discolor Hack.	H	RR s/n
Chusquea leptophylla Nees	H	RR s/n
Chusquea oligophylla Rupr.	H	RR 18104
Colanthelia intermedia (McClure & L.B.Sm.) McClure	H	s/coletor
Eleusine indica (L.) Gaertn.*	H	LAF 1488
Ichnanthus pallens (Sw.) Munro ex Benth.	H	LAF 1570
Merostachys multiramea Hack.	H	TJC 14
Merostachys petiolata Döll	H	RR 18110
Merostachys speciosa Spreng.	H	RR s/n
Ocellochloa rudis (Nees) Zuloaga & Morrone	H	RR 9220
Olyra latifolia L.	H	LAF 888
Panicum polygonatum Schrad.	H	LAF 1817
Panicum schwackeanum Mez	H	LAF 1885
Panicum sellowii Nees	H	LAF 1797
Paspalum conjugatum P.J. Bergius	H	LAF 1487
Paspalum corcovadense Raddi	H	LAF 1606
Paspalum notatum Flüggé	H	LAF 1540
Paspalum nutans Lam.	H	LS s/n
Paspalum pauciciliatum (Parodi) Herter	H	LAF 1553
Paspalum pumilum Nees	H	LAF 1536
Paspalum umbrosum Trin.	H	LAF 1557
Paspalum urvillei Steud.	H	LAF 1802
Pharus lappulaceus Aubl.	H	LAF 1850
Sacciolepis vilvoides (Trin.) Chase	H	LAF 1919
Setaria parviflora (Poir.) M. Kerguelen	T	LAF 1203
Polygalaceae1/1		
Polygala paniculata L.	T	LAF 1074
Polygonaceae2/2		
Polygonum acuminatum Kunth	H	LAF 1916
Ruprechtia laxiflora Meisn.	F	ASS 1289
Pontederiaceae 2/2		
Eichhornia crassipes (Mart.) Solms	CR	LAF 1597
Heteranthera reniformis Ruiz & Pav.	H	LAF s/n
Primulaceae 3/6		
Cybianthus brasiliensis (Mez) G.Agostini	F	LAF 1682
Myrsine coriacea (Sw.) R. Br. ex Roem. & Schult.	F	LAF 1948
Myrsine gardneriana A. DC.	F	AK 7096
Myrsine lineata (Mez) Imkhan.	F	RR559
Myrsine loefgrenii (Mez) Imkhan.	F	MS s/n
Stylogyne pauciflora Mez	F	LAF 1537
Rosaceae 1/4		
Rubus brasiliensis Mart.	F	RR 9200
Rubus imperialis Cham. & Schltdl.	F	LAF 1048
Rubus rosifolius Sm. ex Baker	F	LAF 1903
Rubus urticifolius Poir	F	LAF 1286
Rubiaceae 17/30		
Amaioua guianensis Aubl.	F	FS s/n
Amaioua intermedia Mart. ex Schult. & Schult. f.	F	RMK 2422
Borreria palustris (Cham. & Schltdl.) Bacigalupo & E.L.Cabral	H	LAF 1240
Chomelia brasiliana A. Rich.	F	AK 565
Coccocypselum cordifolium Nees & Mart.	H	LAF 918
Coccocypselum geophiloides Wawra	H	LAF 1014
Coccocypselum hasslerianum Chodat	H	LAF 926
Coccocypselum lanceolatum (Ruiz & Pav.) Pers.	H	LAF 1027
Cordiera concolor (Cham.) Kuntze	F	AK 3475
Coussarea contracta (Walp.) Benth. & Hook. f. ex Müll. Arg.	F	MS s/n
Diodia saponariifolia (Cham. & Schltdl.) K. Schum.	H	LAF 1552
Emmeorhiza umbellata (Spreng.) K. Schum.	F	LAF 1785
Faramea montevidensis (Cham. & Schltdl.) DC.	F	RR 9527
Hoffmannia peckii K.Schum.	F	LAF 1703
Margaritopsis astrellantha (Wernham) L. Andersson	F	TJC 1246
Mitracarpus hirtus (L.) DC.	T	LAF 1241
Posoqueria latifolia (Rudge) Schult.	F	ALG 435
Psychotria brachypoda (Müll. Arg.) Britton	F	LAF 1201
Psychotria hastisepala Müll. Arg.	F	AK 3371
Psychotria leiocarpa Cham. & Schltdl.	F	LAF 1236
Psychotria nemorosa Gardner	F	LAF 1572
Psychotria nuda (Cham. & Schltdl.) Wawra	F	LAF 885
Psychotria officinalis (Aubl.) Raeusch. ex Sandwith	F	LAF 1690
Psychotria stachyoides Benth.	F	LAF 1209
Psychotria stenocalyx Müll. Arg.	F	
Psychotria suterella Müll. Arg.	F	LAF 877
Rudgea jasminoides (Cham.) Müll. Arg.	F	LAF 1234
Rudgea parquioides (Cham.) Müll. Arg.	F	CRG 553
Sabicea villosa Willd. ex Schult.	F	LAF 2025
Rutaceae 1/1		
Esenbeckia grandiflora Mart.	F	CRG 565
Sapindaceae 2/4		
Allophylus petiolulatus Radlk.	F	LAF 1869
Paullinia carpopoda Cambess.	F	LAF 1184
Paullinia elegans Cambess.	F	LAF 1188
Paullinia trigonia Vell.	F	LAF 1870
Scrophuraceae 1/1		
Buddleja stachyoides Cham. & Schltdl.	T	LAF 1046
Solanaceae 7/25		
Aureliana fasciculata (Vell.) Sendtn.	F	LAF 2049
Aureliana wettsteiniana (Witasek) Hunz. & Barboza	F	AK 3459
Brugmansia suaveolens (Humb. & Bonpl. ex Willd.) Bercht. & J. Presl*	F	LAF 1463
Brunfelsia uniflora (Pohl) D. Don	F	ALG 2458
Capsicum recurvatum (Witasek) Hunz	F	LAF 1561
Cestrum bracteatum Link & Otto	F	LAF 1757
Physalis pubescens L.	T	LAF 1095
Solanum americanum Mill.	T	LAF 1146
Solanum didymum Dunal	F	ALG 539
Solanum diploconos (Mart.) Bohs	F	MS s/n
Solanum flaccidum Vell.	F	DBF 3828
Solanum granuloso-leprosum Dunal	F	LMC s/n
Solanum inodorum Vell.	F	ASS 1314
Solanum lacerdae Dusén	F	DBF 3857
Solanum mauritianum Scop.	F	ALG 2467
Solanum megalochiton Mart.	F	DBF 3930
Solanum melissarum Bohs	F	DBF 3614
Solanum pinetorum (L.B. Sm. & Downs) Bohs	F	LMC s/n
Solanum pseudocapsicum L.	F	ASS 1309
Solanum rufescens Sendtn.	F	DBF 3833
Solanum santaecatharinae Dunal	F	LS s/n
Solanum schwackei Glaz.	F	LAF 2020
Solanum stipulatum Vell.	F	AK 3351
Solanum variabile Mart.	F	ASS 1316
Solanum wacketii Witasek	F	ASS 778
Symplocaceae 1/2		
Symplocos glandulosomarginata Hoehne	F	MS s/n
Symplocos tenuifolia Brand	F	RR 4130
Theaceae 1/1		
Laplacea fruticosa (Schrad.) Kobuski	F	MS s/n

FAMILIES/GENUS/SPECIES	FV	VOUCHER
Thymelaeaceae 1/1		
Daphnopsis fasciculata (Meisn.) Nevling	F	ASS 1342
Thyphaceae 1/1		
Typha domingensis Pers.	CR	LAF 1618
Urticaceae 4/10		
Boehmeria caudata Sw.	F	LAF 999
Boehmeria cylindrica (L.) Sw.	F	LAF 1877
Phenax sonneratii (Poir.) Wedd.	F	LAF 1497
Phenax uliginosus Wedd.	F	LAF 1171
Pilea microphylla (L.) Liebm.*	CA	LAF 1723
Pilea pubescens Liebm.	CA	LAF 1575
Pilea rhizobola Miq.	F	LAF 1016
Urera baccifera (L.) Gaudich.	F	LAF 1872
Urera caracasana (Jacq.) Gaudich. ex Griseb.	F	LAF 1823
Urera nitida Brack	F	LAF 1796
Vitaceae 1/1		
Cissus paullinifolia Vell.	F	RR 551
Winteraceae 1/2		
Drimys angustifolia Miers	F	LAF 2070
Drimys brasiliensis Miers	F	ALG 2532
Zingiberaceae 1/2		
Hedychium coronarium J. König*	CR	LAF 1617
Renealmia petasites Gagnep.	CR	LAF 1230